



**MDT**

# **5 WAYS TO DEVELOP PRECISION WITH YOUR SCOPED RIFLE**



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Modular Driven Technologies (MDT)

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# INTRODUCTION

Please bear in mind that the target audience for this is simply someone who already knows how to shoot and uses a scope-sighted rifle to do it. You may be a target shooter, a hunter, a police or military sniper but the main thing is that you want to get better at what you're doing.

A long time ago a wise man taught me that. "The only way you get better at something is if it bothers you that you aren't good at it."

I can only share with you what I've learned that works over the years but I can't make you do it.

Furthermore because I'm taking in such a wide audience I have no doubt that a number of you will go, "Well, I knew that!" but even so if you pick up one thing that you didn't know then I'll have reached my goal.

Now, I won't be covering things like marksmanship fundamentals in depth nor will I be getting a lot into sight adjustments using minutes of angle. I'll suggest some sources to help you with that later in the program.

Given the limitations this format I may, for example tell you to use the standing offhand position but I won't go into detail on how to get into that position.

One thing I will keep reminding you of is the need to do all of this safely:

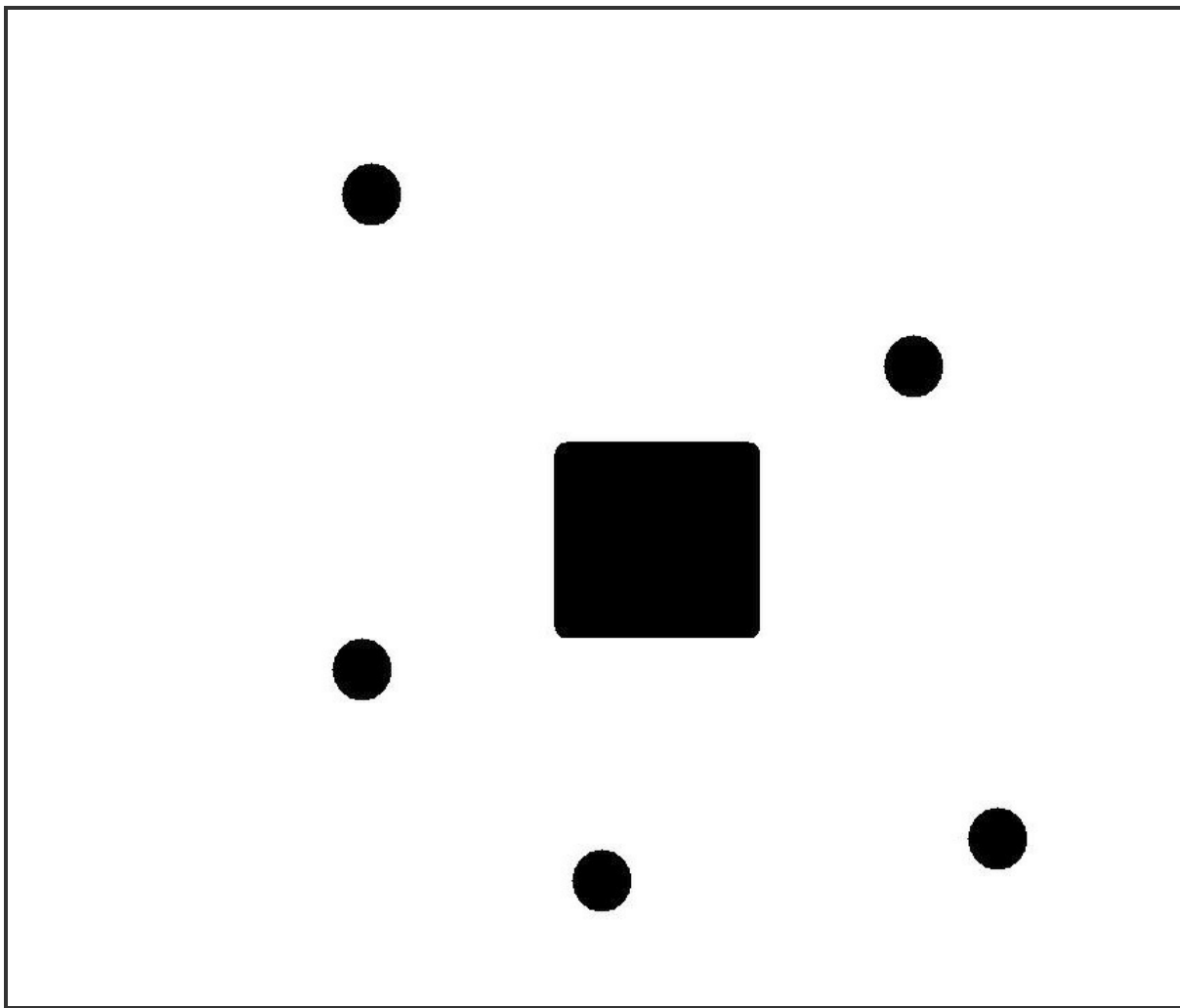
## Basic Firearms Safety Rules:

- Treat all firearms as if they are loaded
- Never point a firearm at anything you are not willing to destroy
- Keep your finger off the trigger until you are on target and ready to shoot
- Always be sure of your target and what is behind it

Before beginning an essay of this kind I usually like to define my terms so we're all talking about the same thing.

Based on the title we'll begin with what's accuracy and what's precision?

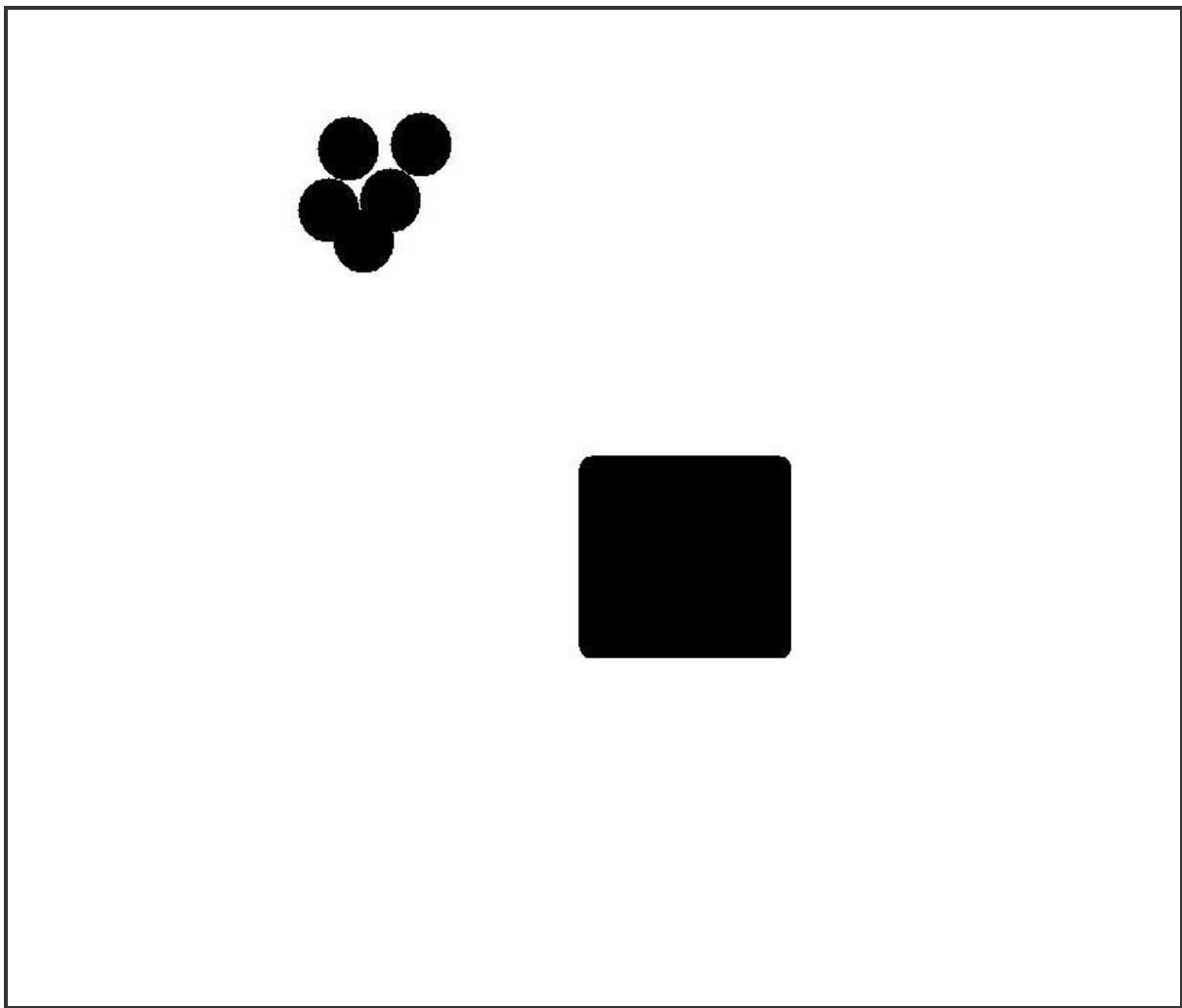
**Accuracy:** This term is often used interchangeably with *Precision* but they are two separate concepts. *Dispersion* caused by the shooter, the ammunition, and the rifle itself combine to form a shot group. The distance between the center of this shot group and the point of aim is used as a measure of the accuracy. The weapon is considered zeroed when the center of the shot group and the aiming point are aligned and there is zero distance between the two. If the precision is poor, then that will be more difficult to measure, due to the larger dispersion pattern. Accurate marksmanship is the ability of a shooter and his rifle to "hit the mark" he is aiming at. In this example shot group, we see that although there is a bit of space in between each shot, the center of all of the shots is located over the aiming point meaning that there is "zero" distance between the Center of the Shot Group and the Aiming Point.



**Accuracy Shot Group**

**Dispersion:** Dispersion is the general reason why no matter how well we shoot we still wind up with shot groups rather than having all the bullets go through the same hole. There are three basic sources of dispersion as far as the weapon is concerned: By the ammunition, by the rifle (including sights) and by the shooter. Ammunition manufactured to loose tolerances causes a lot of dispersion. When manufactured to tight tolerances dispersion is low and shot groups are usually smaller. The same applies to how well a rifle is designed and constructed. The shooter is a source of dispersion by how well, or poorly, he (or she) applies marksmanship fundamentals. Holding the weapon steady, using the sights properly, and firing the weapon without disturbing the other fundamentals are all shooter related sources of dispersion. Bottom Line: Dispersion is a reflection of the *Precision* of the shooter, the ammunition, and the rifle/sights.

**Precision:** This term is often used interchangeably with *Accuracy* but they're two different concepts. As mentioned under dispersion, precision is a measure of the size of the group, or the given dispersion pattern. When talking about shot groups, precision is the quality of firing a small shot group. It also depends on how many shots are in the group. Basically we can compare precision between say, two 5-round groups but as we add rounds to a shot group it steadily gets larger. Don't waste ammo with 3-round groups. In the next example, we see a shot group with a lot of precision; the bullet holes are clustered close to each other. Because the center of all of the shots is some distance from the aiming point, we would say that this group doesn't have a lot of accuracy. By consistently doing everything exactly the same way for each shot you'll find that Consistency Causes Precision.



**Precision Shot Group**

So understanding this leads us to the conclusion that we have to develop precision before we can think of accuracy. Think of it this way, until you can fire a group that you can locate the center of, there's really no point in trying to zero your sights.

From now on, (as long as you're on paper) don't touch your sights and don't change your aim point until you have a consistent, more or less circular shot group.

So Precision first, followed by Accuracy is the ticket.

What follows are 5 ways to develop Precision with your rifle.

# CHECK YOUR EYES

The title of this section isn't to make you run to the bathroom mirror to make sure that your eyes are still there or to make a special trip to the eye doctor (which you should be doing annually anyway).

What I'm going to concentrate on is a subject that I've gotten the most pushback from in my career and that's correcting cross-dominance.

Once again in defining our terms we first have to understand that along with a dominant hand (usually the one you write your signature with) making you left or right handed you also have a dominant eye (also called the Master Eye) which functions to make you left or right "eyed".

This dominance takes the form of being the "base" eye that automatically lines up with an object while the non-dominant eye come in at an angle in order to create depth perception.

Now if you have a dominant right eye/right hand or left eye/left hand you have "uncrossed" dominance. If however you have a dominant right eye with a dominant left hand or dominant left eye with a dominant right hand then you have a condition called Crossed Dominance and that needs to be fixed.

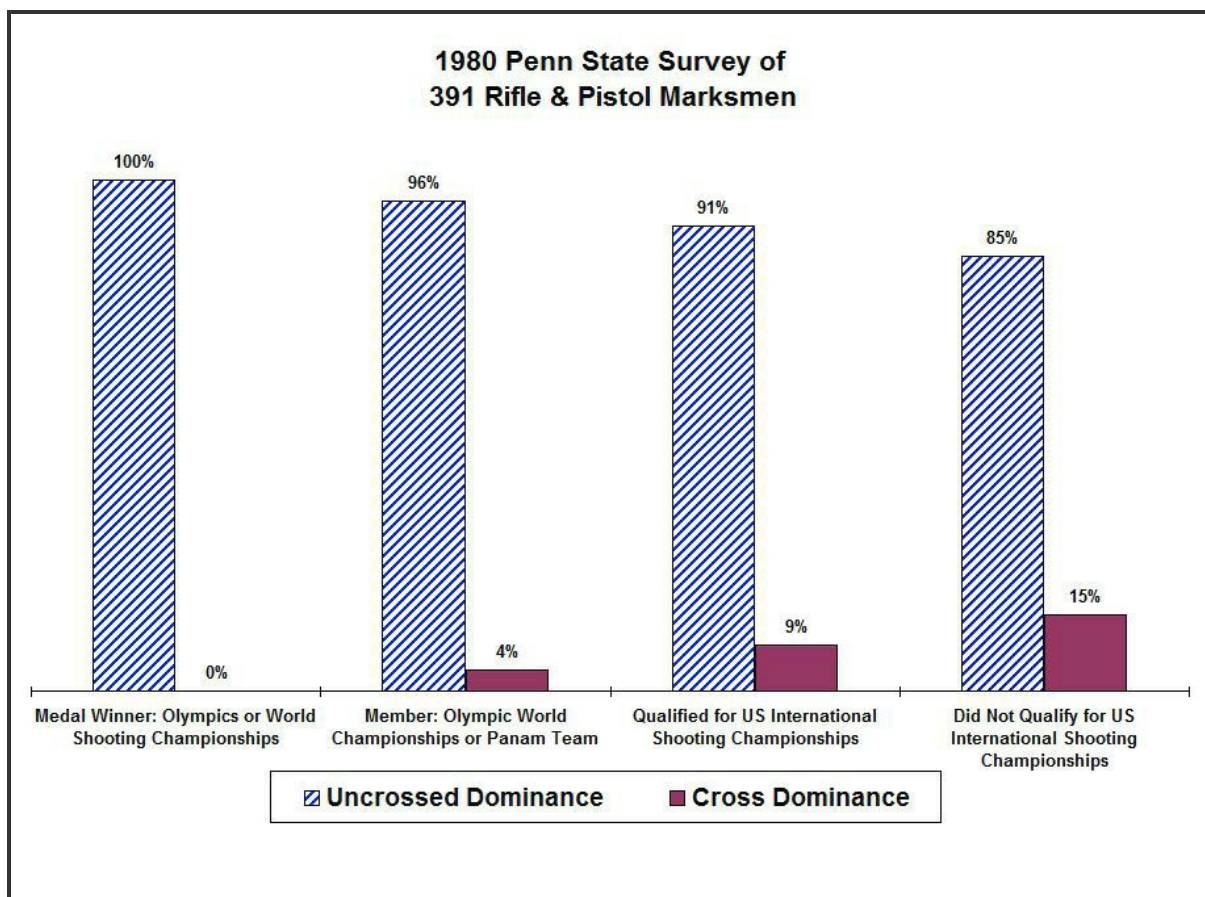
As a little side note, it turns out that if you have a dominant left eye paired with a dominant right hand then you're in the company of the best golfers according to a 1935 study of cross dominance ("A Study in Eye Dominance", by H. Banister).

Anyway, back in the late 80's I came across a 1981 American Rifleman article ("Do The Eyes Have It?" by ) that described research that had been going on at Penn State University in order to identify the differences between champion and novice rifle and pistol shooters.

It so happens that one of the characteristics tested was the presence or absence of cross-dominance.

To summarize the results, although there were a lot more folks in the unqualified group and the fewest in the Olympic Gold Medallists Group (like 14 people) it turns out that the higher up you go in World level competitive marksmanship the less cases of cross-dominance there are.





So ever since then I've been testing my students for which is their dominant or Master Eye and making them shoot off the shoulder on the same side as that eye so that there's no cross-dominance.

Yes, it feels uncomfortable at first and if you have a left dominant eye and a right handed bolt gun you'll have learn to work the bolt a new way. In the short term however, one day everything will fall into place and it will seem the most natural thing to do BECAUSE IT'S THE WAY YOU WERE DESIGNED TO SHOOT!

A reliable and simple way for you to find your Master Eye is to cut about a one inch hole in the center of a sheet of paper.

Hold the paper at arms length in both hands and with both eyes open look at some object several yards away.

Keeping both eyes open and continuing to look at the object slowly bring the paper towards your face until it touches. You'll find that one eye is looking through the hole and that is your dominant eye.

From that point on, whichever eye it is, shoot your rifle from the same side shoulder.

# KNOW YOUR SCOPE

Some years ago I had occasion to assist a sniper on the day that he was due to complete the Record Fire on the last day of sniper school.

To summarize, he was seeing two reticles and wanted my help. I picked up his rifle, looked through the scope and saw immediately that his reticle was out of focus. To be sure I handed the rifle off to the other instructor and he also confirmed that it was out of focus.

The student kept swearing up and down that it looked focused to him and that couldn't be the problem. I then asked him if he knew how to focus the eyepiece. He said no and he pointed to his objective focus knob (more on that later) as the only adjustment that he had been making. This after five days of the Primary Instructor asking, "Are there *any* questions?"

I focused his eyepiece for him and he went on to shoot the practices for that day. He began grinning because his scope's reticle was now "fixed". And so it goes.

Anyway, I'd like to reiterate the title of this piece and flat out tell everyone, that there is NO EXCUSE FOR WHAT HAPPENED.

Realizing that the American male stereotype is someone who doesn't read instruction manuals I'm going be swimming upstream here but I hasten to point out that we aren't talking about the operator manuals that come with your computer, digital camera or cell phone.

To begin at the beginning, make sure that you have the operator's manual for your scope. You may have gotten your scope second hand but you can still usually download them online from the manufacturer's website or by contacting them directly. If the company is out of business that ought to tell you something right there. Like, buy a new scope.

This isn't going to be a comprehensive class on telescopic sights, but hopefully we can make sure that you are properly focused.

As before let's define our terms:

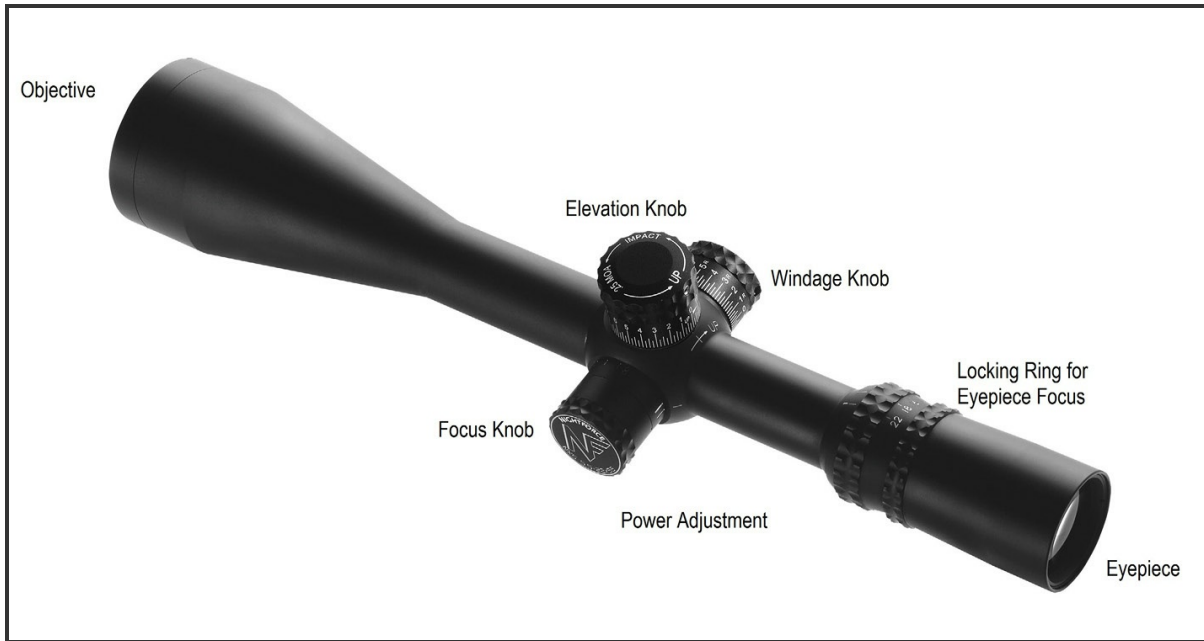


# NOMENCLATURE AND FUNCTION

There are two basic designs or patterns of scopes. The Adjustable Objective (AO) and the Focus Knob. I'm ignoring the fixed focus scopes for the purposes of this article.

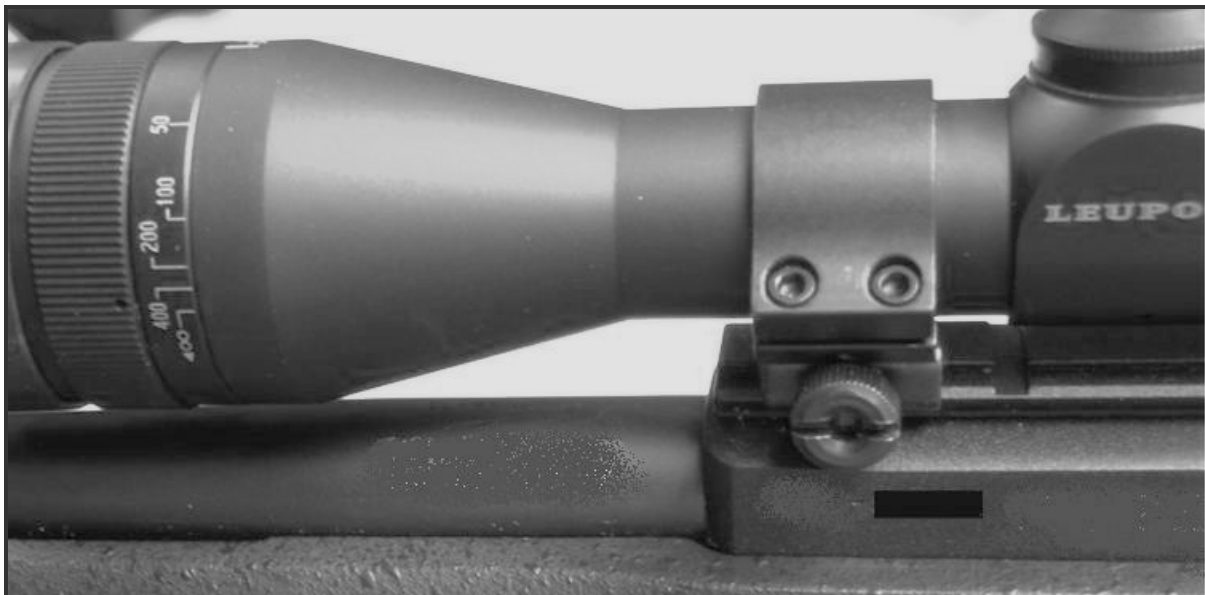
NOTE: Even manufacturers who should know better have started calling this the Parallax Adjustment. I'm not going to get into parallax just now but what that knob adjusts is the focus of the objective lens. Parallax is a symptom; objective focus (or lack of it) is the cause. It's also not a "Fine Focus" Knob. Now back to our program.

The focus knob usually takes the form of a third turret sticking out of the side of the scope like this Nightforce variable:



Also notice that at the eyepiece is the variable power ring and additional knurling where the eyepiece attaches to the ring. More on that later as well.

The other type of focus system usually has a sleeve on the objective bell that rotates allowing you to focus for different ranges. Sometimes they even have range markings to aid in quick adjustment like this Leupold:



Both of these types of scope also have an eyepiece focus at the rear of the scope. This often has that locking ring, but some like this one just has an index and + and – symbols to aid in adjustment.



Now maybe you can understand my frustration at someone even thinking that they could focus the reticle by twiddling with an adjustment at the very front of the scope!

Anyway, light enters the objective, is focused onto the reticle and then that light from the target and the image of the reticle or crosshairs is focused by the eyepiece into your eye.

As a moment's reflection will reveal, if our eyepiece isn't focused to our eye first, then it's pointless to try and focus any downrange images.

Since I'm just focusing on focus (it was bound to happen) for this article, I'll assume that your scope was installed correctly.

Step 1. You can do this part indoors. Observing all safety precautions aim at a light colored wall or white board. **DO NOT STARE THROUGH THE SCOPE!** Given half a chance, your eye will automatically compensate for any slightly out of focus images. Therefore, do what I call "sneaking up on the focus". Take a quick glance to see if the reticle is in focus against the light background. If it is, then leave it alone! If not follow the instructions in your operator's manual to unlock the eyepiece. For most scopes you can just give it a quarter turn counterclockwise to back it away from that locking ring that I previously mentioned. Give the locking ring a couple of turns clockwise to move it out of the way.

Step 2. Repeat glancing at only the reticle and seeing if it's sharp and clearly defined. Importantly, **DO NOT FOCUS THE EYEPIECE WHILE LOOKING THROUGH IT.** Doing that is, in my experience, one of the leading causes of eye fatigue while staring through a scope that you think is focused. So look, back away, focus and look again.

Some really good advice from Leupold is if you tend to hold things away from yourself to see them clearly (you are farsighted) turn the eyepiece counterclockwise a couple of turns. If you hold things close to yourself to see them clearly (you are nearsighted) turn the eyepiece clockwise a couple of turns.

Step 3. When the reticle is focused, retighten the locking ring and check your focus one last time in the same manner as before (with a glance).

Just to expand on Step 2, your eyes do this thing called accommodation. They automatically focus at whatever you're looking at. For example, you're on a sidewalk and a car drives past you. It's in focus as it's at the end of the street and it stays in focus as it drives past and into the distance. If your reticle is slightly out of focus and you stare at it then your eye will helpfully strain just a tiny bit to bring it the rest of the way into focus.



# DON'T TRAIN WITH CRUTCHES

So we've eliminated cross-dominance which means we're looking through a properly focused scope with our Master Eye, now what?

Eventually you're going to be practicing whatever it is you plan on using your scoped rifle for and I would just ask you to keep in mind the title of this section which bears repeating, DON'T TRAIN WITH CRUTCHES.

If you're a target shooter this section doesn't really apply to you due to the fact that you'll have a series of rules that you have to follow in competition specifying when you get to use slings, shooting jackets and such as well as what specifications they have to follow.

The folks I'm talking to now are the ones who'll be tempted to train their prone position with a sandbag under the toe of the stock.

This of course is as good a time as any to define our terms:



In the mid-1980's the use of "sand socks" was borrowed from bench rest shooters and taught to military snipers in the Special Forces community at Fort Bragg, NC and from there it spread throughout the sniper community.



**Toe Bags photo from US Army Sniper manual**

So the idea was that you wedge a sand bag or an Army green sock filled with rice or plastic beads and your non-firing hand would tighten or relax your grip on the bag in order to adjust the elevation of your aim.





**A sand sock devotee in action, wasting training time**

The problem became one where “training” became endless shooting from the prone position with a bipod in front and a sand bag in the rear and the shooter wasn’t learning how to shoot. The reason being that these artificial aids (or “crutches” if you will) were soaking up any holding or firing errors. The only way to correct errors is to reveal them and this type of practice only served to hide them. There’ll be more about this in a later section.

Speaking of bipods, let me begin by saying that I’ve had a Versa-Pod bipod on my rifle for a great number of years now and we’ve been very happy together. That said, don’t be that guy who when told to practice the sitting position snaps in his handy dandy bipod with extended legs.



Once again, in a training environment this defeats the purpose of practice.

Same principle applies to monopods. These usually attach or are built in to the toe of your rifle stock and support the rear like a bipod does in the front.



Again, if you want to learn how to shoot better you don't want to waste time allowing all of these supports to hold the rifle steady for you while you press the trigger.

Let me hasten to add that this isn't a case of "Well you might lose your sandbag" or "You know, your bipod/monopod might break" but is all about any gains you make practice without is all YOU. You'll also find that practicing unaided will enable you to shoot that much better when you can use things like sandbags.

The main thing to take away from this is the fact that shooting prone bipod with a toe bag will only make you good at shooting prone bipod with a toe bag.



# CALL YOUR SHOTS TO FOLLOW THROUGH

I have a suspicion that I'd better define my terms right out the gate just to answer any questions about the title.

Follow through is simply the technique of continuing to apply ALL the marksmanship fundamentals until the bullet is safely out of the rifle bore.

As an aside and because you've stuck with me this far I'll review the 4 fundamentals of marksmanship:

1. **STEADY POSITION**
2. **AIMING**
3. **BREATH CONTROL**
4. **TRIGGER CONTROL**

Before you start thinking there isn't anything new under the Sun, I find it fascinating that the first time this exact list was published for widespread distribution was July 1983 by the US Army (In Change 1 to Field Manual 23-9 for the M16A1 Rifle, the 1974 edition).

It seems that the US Army Infantry School was trying to come up with a better way to more effectively train recruits to shoot rifles so they brought in the Army Research Institute.

What ARI found out was that in spite of various lists of different "steps" or "factors" experimenters could violate one or more items and still qualify. In response to this, they identified the rifle shooting fundamentals that had been hiding in plain sight all along.

The point of a fundamental is that if you don't use it you won't hit your target.

So, getting back to follow through, after you've applied all the fundamentals and your final trigger press has made the rifle fire you have to:

Maintain your **STEADY POSITION**

Continue **AIMING** at the target

Maintaining your **BREATH CONTROL**

Keep pressing the trigger to the rear to apply **TRIGGER CONTROL**

And you're doing this while your rifle is recoiling.

The simple answer as to why this is important is because it's the most effective way to guarantee that you don't stop applying the fundamentals just prior to the shot going off.

Now I'm not one for a lot of traditional coaching practices involving target analysis; the kind that takes the form of you and I walk up to your target, I squint at it and say, "You used hot sauce on your eggs this morning" or else something like, "You're flinching" just to prove my awesomeness as a rifle coach.

The main reason you won't catch me doing that is because I would rather emphasize you applying the fundamentals properly and letting that take care of the target (there are other reasons but let's just stick with that one for now).

For example, I told you about Dr. Daniel Landers when he was at Penn State wiring up shooters in his lab and monitoring their performance.

In one case he describes (in his Reflections on Sport Psychology and the Olympic Athlete, 1984) a collegiate rifle shooter fired twenty shots very erratically. Fortunately Lander's monitors detected that she was inhaling as she

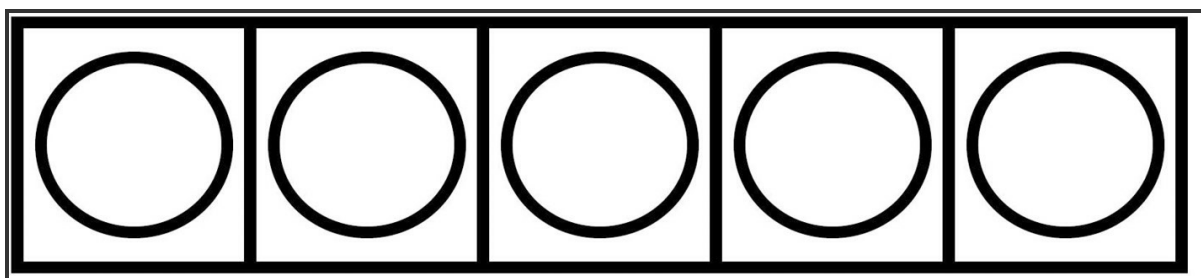
began to squeeze the trigger rather than holding it until a half second after firing.

One made aware of it, she finally stopped doing it from the last 15 out of 20 shots and increased her score by 13 points!

As to calling the shot, if you are indeed following through on aiming by focusing on the crosshairs in relation to how they line up on the target you'll see a quick snapshot of where the crosshairs are in relation to the target.

That picture isn't going to stay with you long so you have to have some kind of sheet to place a mark representing what you saw.

These are usually contained in various commercially available rifle scorebooks but you can just use circles in boxes:



So with these 5 call boxes you're looking at firing 5 shots at target.

You make sure you have a steady position, you establish when in your breathing cycle you'll stop (I prefer the natural respiratory pause myself), you use your dominant eye to line up the crosshairs with the target through your perfectly focused scope and you press the trigger straight to the rear as the rifle goes BANG.

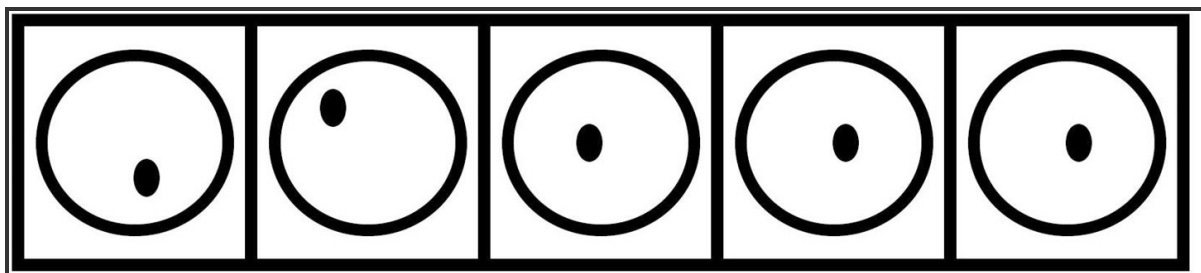
If I was there I would have told you to "Fight for the Crosshairs" through the recoil and when you're back on target, then and only then do you resume breathing, open the bolt, etc.

As soon as you can and without disturbing that steady position you pick up your stubby pencil and place a little dot where you saw the center of the crosshairs in relation to the target when the rifle went off.

NOTE: This has NOTHING to do with where the bullet wound up or where you intended it to go but rather it's all about you had your eyes open and aiming as the rifle went off.

The best advice I can give is if you have a spotting scope or the like DON'T look at your hit until you've marked your call.

After doing this five times you'll wind up with something like this:



Eventually if your zero is correct and you're applying the fundamentals before, during and after each shot you'll have a corresponding bullet hole in the target at the same place you called it.

So add Follow Through and Calling the Shot to your vocabulary and see the results.

# PRACTICE WHAT YOU SUCK AT

We now come full circle with a corollary of what I began this essay with that THE ONLY WAY THAT YOU GET BETTER AT ANYTHING IS IF IT BOTHERS YOU THAT YOU AREN'T GOOD AT IT. This title by the way is one of my favorite quotes from my friend and colleague Derrick Bartlett.

Of course, the way you get there is by practicing those things you aren't good at? Sounds obvious you say? Next time you watch footage of military snipers training see how many of them lie in position shot after shot using only the prone bipod supported position with the rest of the rifle supported by sandbags. See how leisurely they work the bolt after each shot.

The chances of you catching them practicing unsupported positions or under stress are pretty slim. Keep in mind this is supposedly under the supervision of a chain of command that has a vested interest in their being able to perform in combat.

The point is that I'm picking on my former colleagues in order to make an argument for you to make a large portion of your initial training in shooting standing offhand.

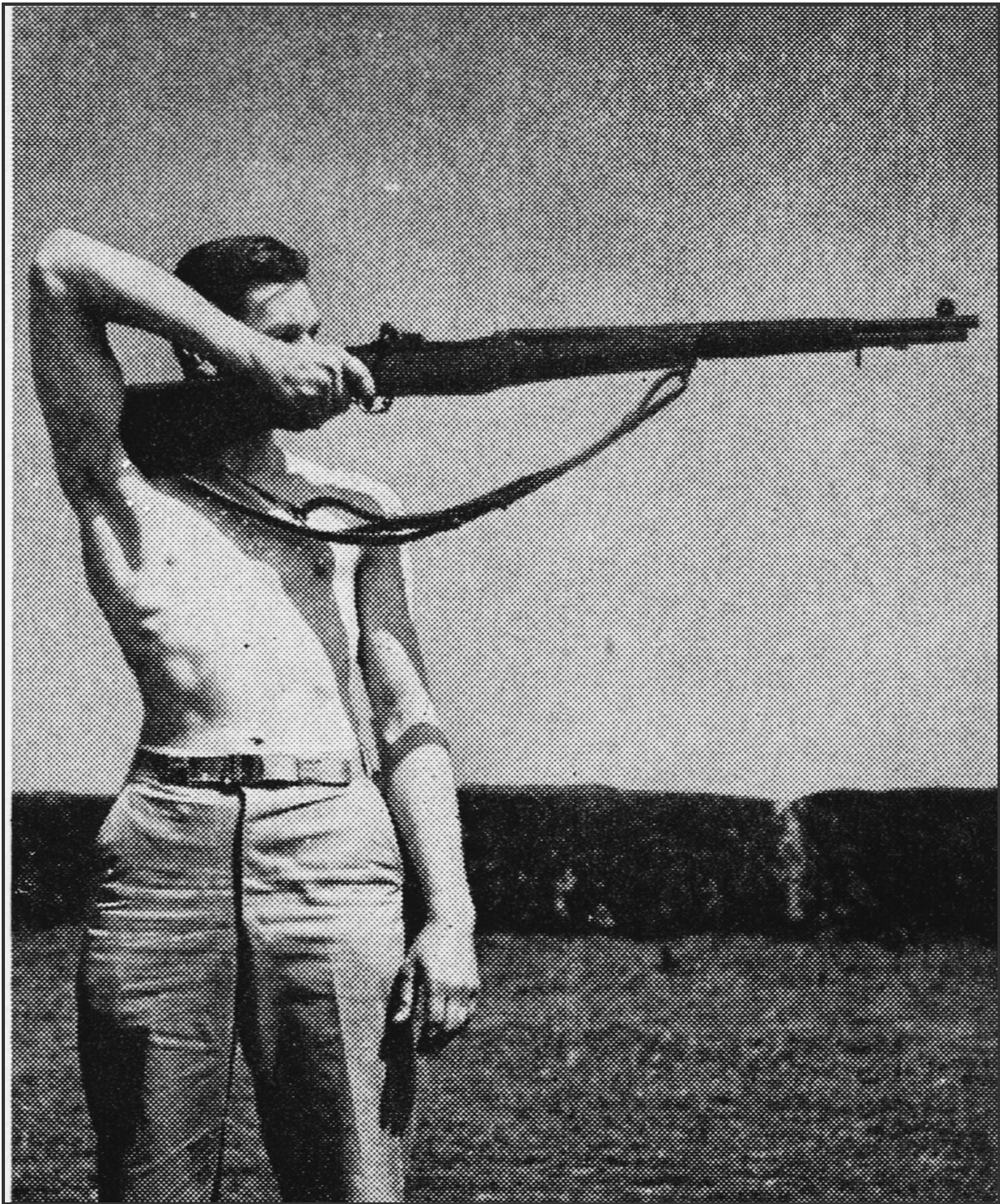
Believe it or not I've had people get this one wrong so once again, I'll define my terms.

The standing offhand position is fired using your dominant side (should be your dominant eye side) and your non-firing or "off" hand is used to support the rifle. Sometimes I prefer calling it Standing Unsupported due to the uninitiated I run into. For example, every year my friend Russ Miller and I help run a shooting competition that includes a Side Shoot for charity. The rules of the Side Shoot call for shooting from the Standing Offhand. I can't tell you how many folks used to show up and assume that Standing Offhand meant shooting off the left shoulder for a right handed shooter and vice versa!

Anyway I've encountered a lot of people that don't like the standing because it doesn't produce tight shot groups like shooting off sandbags and bipods. So they have the attitude that their egos are more important than their training.

The key thing to remember is that any skill you develop in Standing Unsupported will translate into better performance into every other position with more support.

Back in the day, it was common to train to hold the rifle with the firing hand and the muscles of the shoulder as seen in the illustration from the 1943 "How to Shoot the U.S. Army Rifle" published by the Infantry Journal.



That's with a nine-pound M1 Garand rifle as well.

In fact, one of my final recommendations to you is to invest in a match grade air rifle, a supply of pellets and a portable bullet trap rated for .22 caliber rifle ammo (it'll last longer than a backstop just rated for pellets).

Observing the same firearms safety rules and the addition of mandatory eye protection you can set this up in a lot of places you wouldn't dream of firing your rifle. Just remember to practice standing offhand and don't waste pellets shooting from the prone.

So work with these for a while and see what happens when you

Check Your Eyes

Know Your Scope

Don't Train With Crutches

Call Your Shots to Follow Through

Practice What You Suck At



# FURTHER READING

There is so much erroneous information that's made its way into books that I urge you to be careful in your selections. There's no shortage of reprinted military manuals or manuals written by "Good Old Boys" who have no idea what they're talking about.

**Snipercraft: Laying the Groundwork for a Career as a Sniper** by John C. Simpson

(Don't be afraid of the title, this is actually a non-technical, non-tactical entry level book on rifle marksmanship with a scoped rifle)

**Secrets of Mental Marksmanship** by Linda Miller and Keith Cunningham

(A must have book whether you're a target shooter, hunter or sniper)

**Position Rifle Shooting** by Bill Pullum and Frank T. Hanenkrat

(Unfortunately out of print but used copies are available online)

Arguably one of the best resources out there is the Civilian Marksmanship Program (CMP) <http://thecmp.org/> that has the following publications for sale:

**The CMP Rifle Instruction Guide**

**U.S. Army Marksmanship Unit Service Rifle Guide**

**U.S. Army Marksmanship Unit International Rifle Marksmanship Guide**

In the case of stuff from the USAMU, pay attention to what they have to say about shooting positions and technique but generally ignore what they have to say about ballistics.



## ABOUT THE AUTHOR: JOHN C. SIMPSON



John retired in 1994 as a Sergeant First Class from the US Army Special Forces. During his military career he spent 5 years teaching sniping to Special Operations personnel at the Special Warfare Center at Ft. Bragg, NC, and 3 years in a High Risk unit in Germany as the Master Sniper, with 2 years as Chief Instructor at the 10<sup>th</sup> Special Forces Group Sniper Committee at Fort Devens, MA. John is currently a Staff Instructor for Snipercraft, and has been an Adjunct Instructor at the Smith & Wesson and SigSauer Academies. He is the author the 2010 book *Sniper's Notebook* and the 2013 book *Snipercraft: Laying the Groundwork for a Career as a Sniper*. He's also contributed chapters to the *American Sniper Association Sniper Operations and Training Manual*, *The Wind Book for Shooters* and written articles on sniping and precision rifle instruction for various publications.

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